

# 微服务架构实战

研发一部 韩宁 2020年2月

# 目录

# 一 微服务架构简介

- 诞生历程
- 架构特点
- 核心部件

# 二 DSP技术架构分享

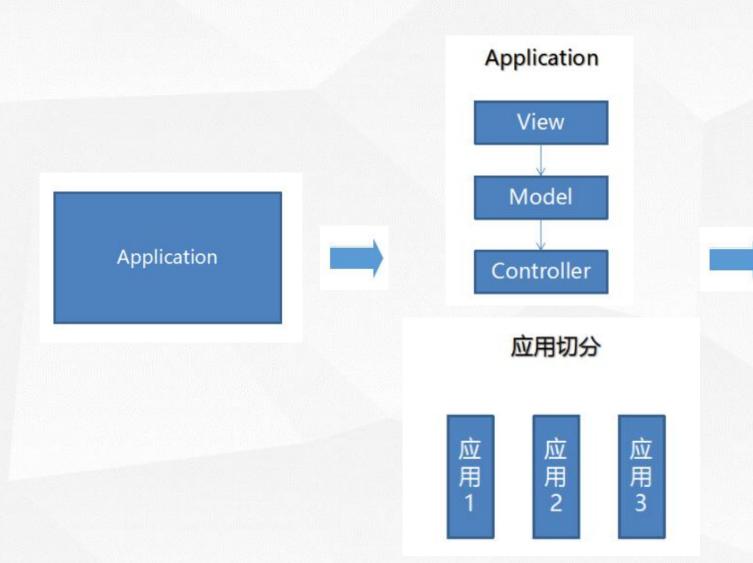
- 系统简介
- 技术框架
- 服务治理

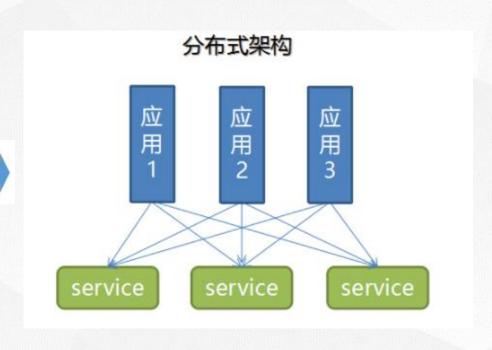
# 三 思考与讨论

# 第一部分微服务架构简介

# 微服务架构简介 - 诞生历程







## 微服务架构简介 - 诞生历程





Micro (u)Services Architecture - small, short lived services rather than SOA.

2012/3

Fred George



Microservices - the new architectural style

Martin Fowler, Mar 2014



Loosely coupled service oriented architecture with bounded contexts. 2014/11

Adrian Cockcroft



Neal Ford

Microservices are the first post DevOps revolution architecture.

2015/10

微服务架构风格是将一个单独的应用 程序开发为**一组小型服务**,每个小服 务运行在独自的进程中,并使用轻量 级机制通信,通常是 HTTP API。这些 服务围绕业务能力来构建,并通过全 自动化部署机制来独立部署。这些服 务可以使用不同开发 语言、不同数据 存储技术,并保持最低限度的集中式 管理。



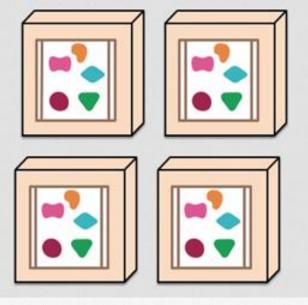
A monolithic application puts all its functionality into a single process...



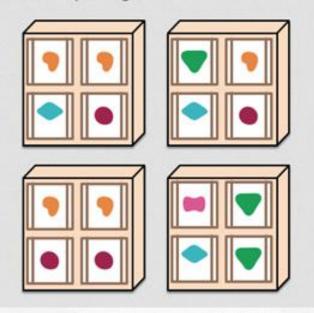
A microservices architecture puts each element of functionality into a separate service...



... and scales by replicating the monolith on multiple servers



... and scales by distributing these services across servers, replicating as needed.



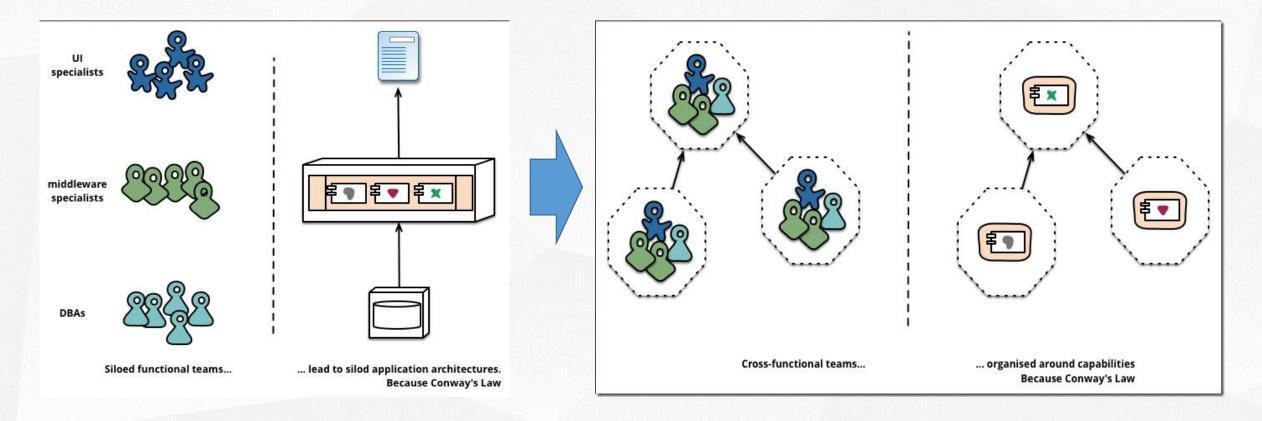
- > 组件化与服务
- ▶ 强化终端及弱化通道



▶ 围绕业务功能的组织架构

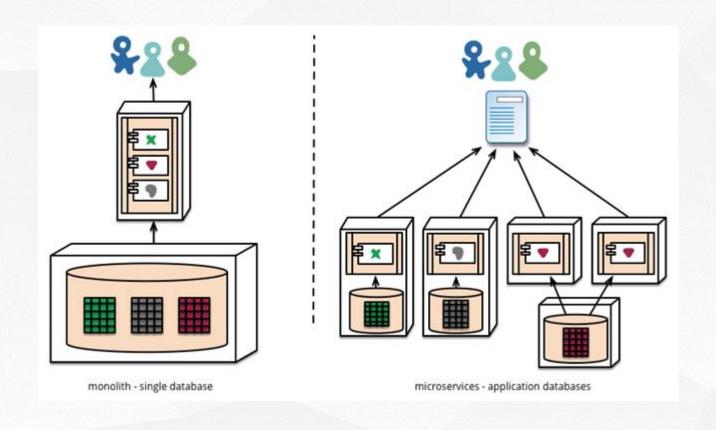
▶ 产品不是项目

> 分散治理



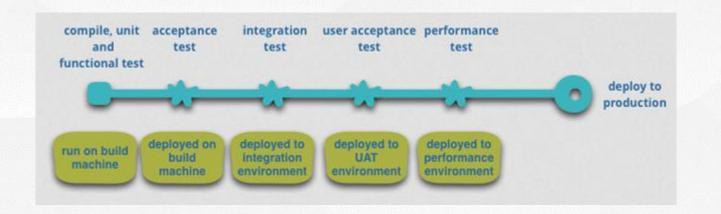
设计一个系统的任何组织(广义上)都会产生这样一种设计,其结构是组织交流结构的复制。——Melvyn Conway, 1967



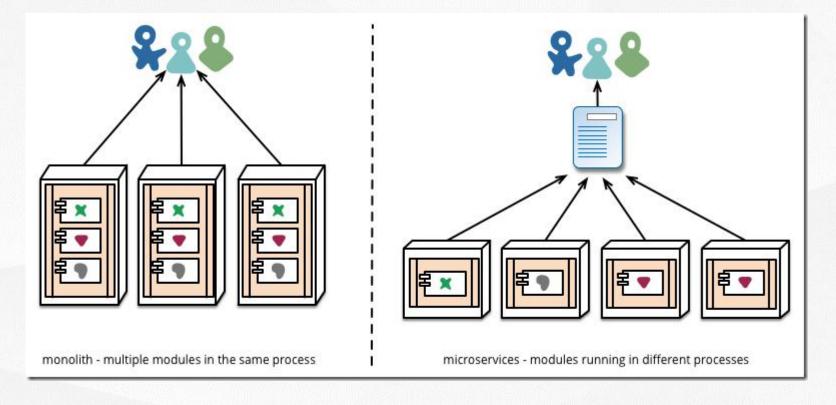


- > 分散数据管理
- > 容错性设计



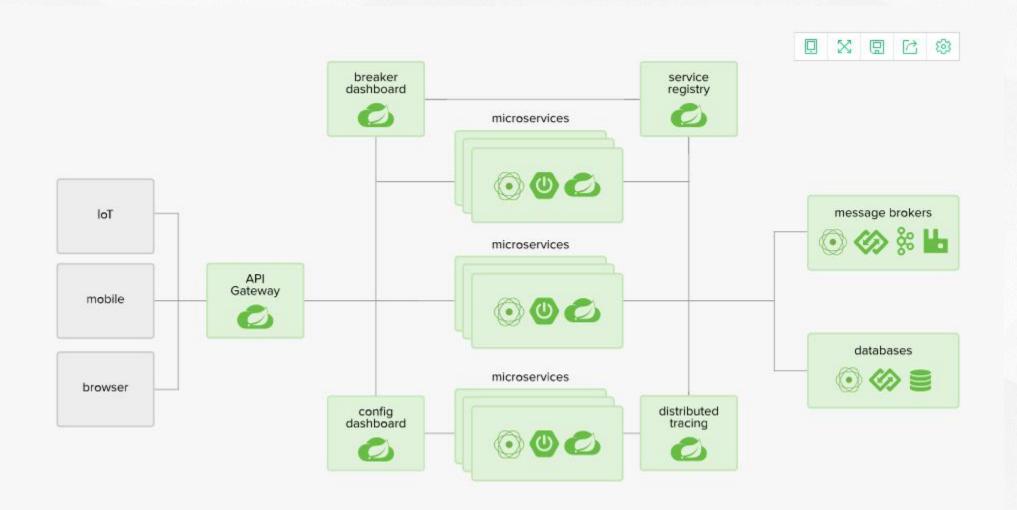


▶ 基础设施自动化



# 微服务架构简介 - 核心部件





# 第二部分 DSP技术架构分享

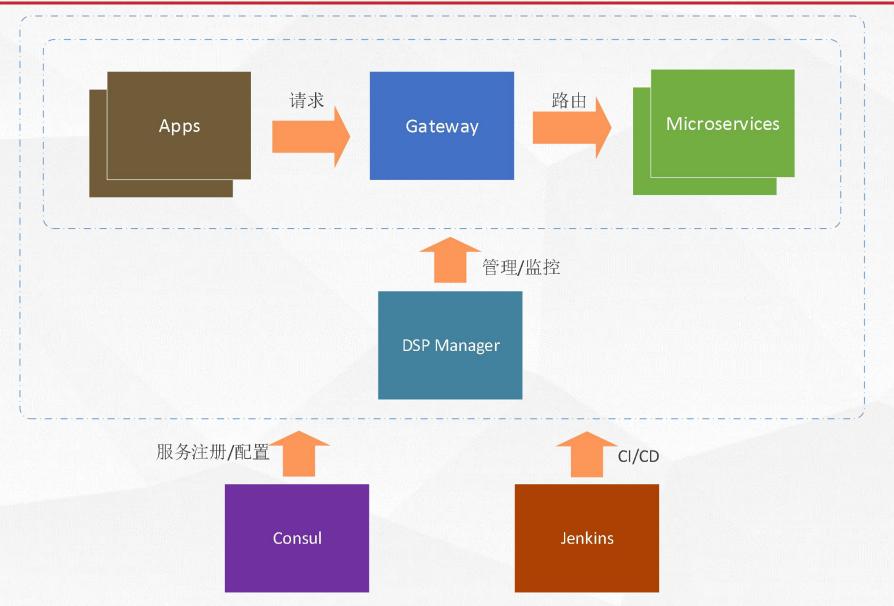
### DSP系统简介



数据服务平台DSP(Data Service Platform)旨在**封装学科网通用的数据访问业务**,为上层业务系统提供**跨平台**的、**使用简单**的、**稳定高效**的数据访问服务,并**对数据访问提供统一的管理及优化机制**。从而达到**规范数据访问服务的开发模式,提高业务系统的开发效率,降低业务系统的开发及维护成本。** 

# DSP系统简介 - 系统交互图





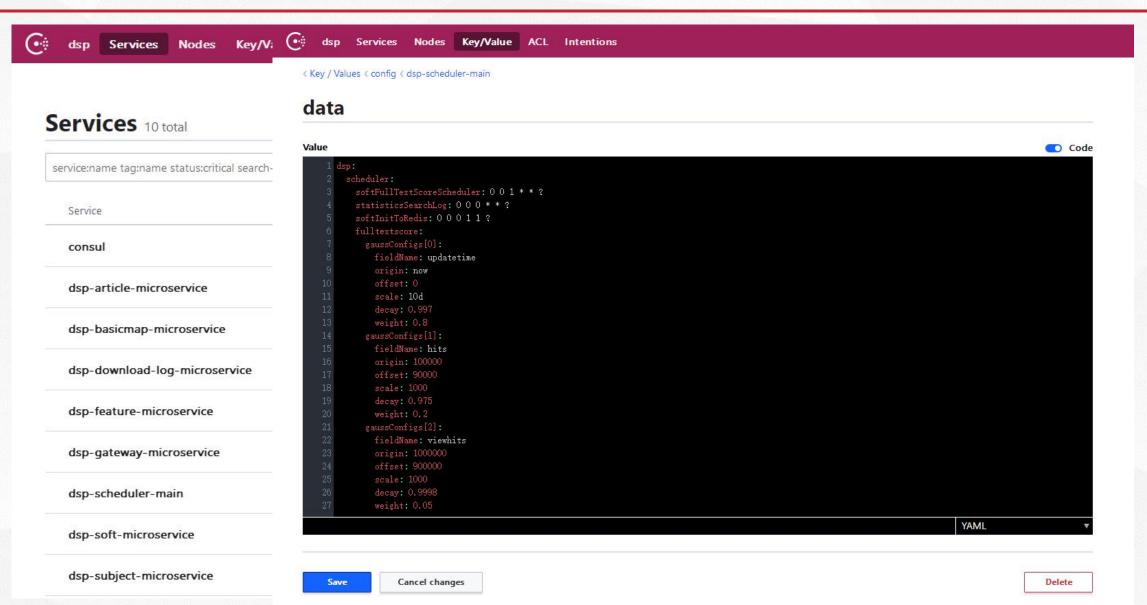
# DSP系统简介 - 体系结构图





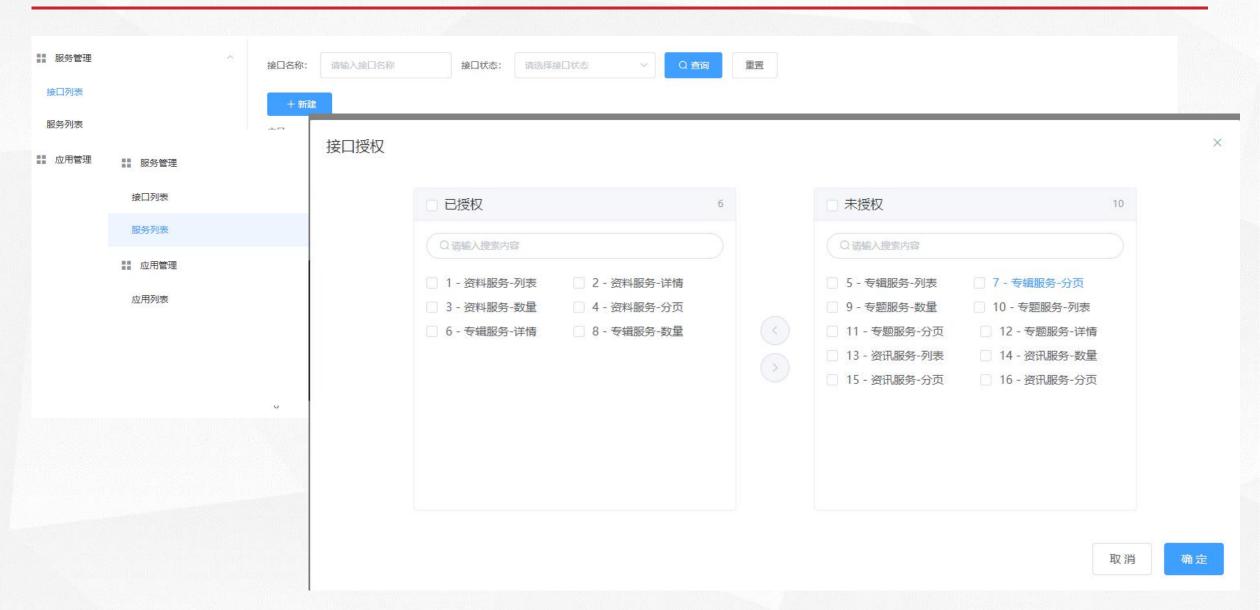
## DSP系统简介 - Consul





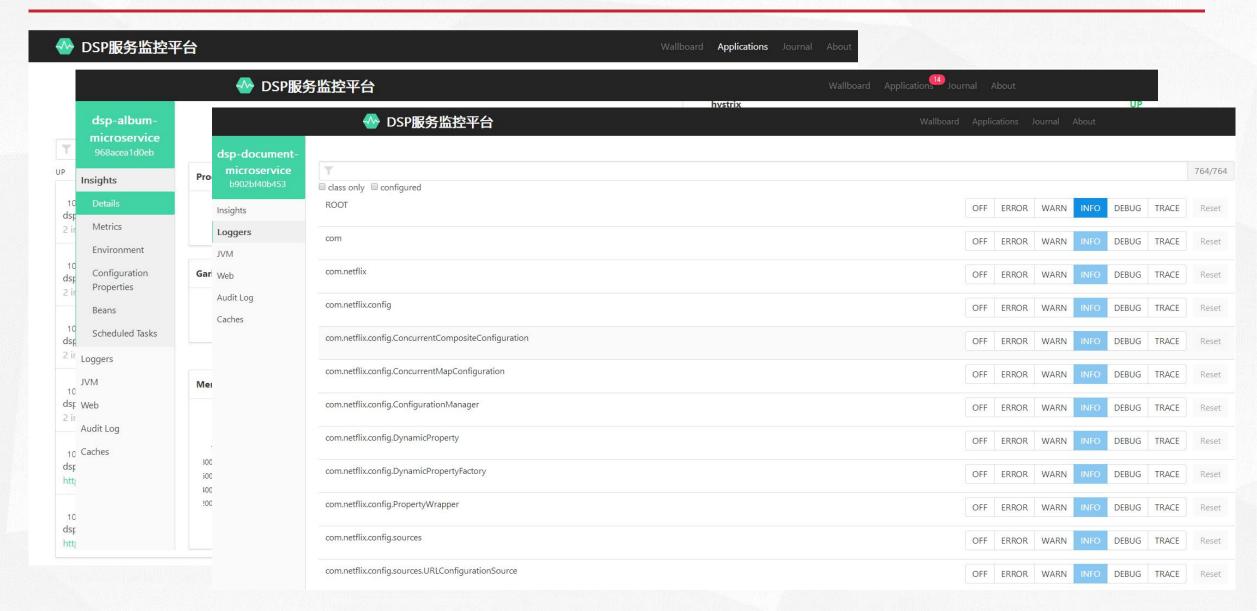
# DSP系统简介 - 服务管理平台





# DSP系统简介 - 服务监控平台





# DSP系统简介 - 链路追踪监控平台



服务名	Zipkin 查找 已保存 依赖							Try Lens UI	请输入trace	eid	搜索	
対象対向   ・	服务名		Span名称		远程服务名			时间				
### Annotation性ip	all	~	all	~	all		~	自定义			*	
根据Annotation面向  For example: http.path=/foo/bar/ and cluster=foo and cache.miss  Ex: 100ms or 5s  10  科助接序  ***  ***  ***  ***  ***  ***  ***					开始时间			结束时间				
For example: http.path=/foo/bar/ and cluster=foo and cache.miss  Ex: 100ms or 5s  10  转换的。  Fibition  Services:  Fibition  Fi					2019-02-12	12:23		2020-02-11	12:38			
Soving: 10 of 10   Services   Indiana   In	根据Annotation查询				持续时间 (μs) >=		数量		排序			
Showing: 10 of 10   Services   1	For example: http.path=/foo/bar/ ar	nd cluster=foo and cache	e.miss		Ex: 100ms or 5s		10		耗时降序		*	
1.05s   1 spans   1.05s   1 spans   1.05s   1 spans   1.05s												
A4.955ms   1 sp.   ticle-zxxk-com x1   144.   Services   15.187ms   30.375ms   30.375ms   45.562ms   60.750ms   15.087ms   15.087m	Services: all											
44.955ms   1 sp:	.105s 1 spans 持续时间: 75.9		服务: 3	深度:	:3	Sp	an总数: 5					JSON 🕹
Services   15.187ms   30.375ms   45.562ms   60.750ms     36.854ms   1 spi	.105s 1 spans 持续时间: 75.9 p-gateway-microservi 99.659ms 2 spateway-microservic	全部折叠			: (3)	Sp	an总数: 5					JSON 🕹
dsp-article-microservice-v2 5.980ms: post  dsp-gateway-microservice v2 5.980ms: post  dsp-article-microservice v2 5.980ms: post  dsp-article-microservice v2 5.980ms: post  dsp-article-microservice v2 9.177ms: post /article/get-article-list	.105s 1 spans p-gateway-microservi  299.659ms 2 space	全部折叠			:3	Sp	an总数: <b>5</b>					JSON 🕹
dsp-gateway-microservic 20.706ms : post  31.734ms 1 sp:  dsp-article-microservice-v2 9.177ms : post /article/get-article-list	.105s 1 spans p-gateway-microservic s99.659ms 2 spi p-gateway-microservic article-zxxk-com 44.955ms 1 spa ticle-zxxk-com x1 144. Services	全部折叠 x4 dsp-article-microservic	ce-v2 x3 ∑dsp-gatewa	y-microservice x2 )		Sp	an总数: S	45.562ms			60.750ms	JSON ₹
31.734ms 1 sp: dsp-article-microservice-v2 9.177ms : post /article/get-article-list	.105s 1 spans p-gateway-microservic sp9.659ms 2 spi p-gateway-microservic 44.955ms 1 spi ticle-zxxk-com x1 144. Services article-zxxk-com article-zxxk-com	全部折叠 x4 dsp-article-microservic ·75.937ms : get /arti	ce-v2 x3 dsp-gatewa icle/(id)/(page).html	y-microservice x2 15.187ms	30.375ms	Sp	an总数: §				60.750ms	
26.252	持续时间: 75.9  持续时间: 75.9  ### ### ### ### #### ###############	全部折叠  75.937ms: get /article-vice-vice-vice-vice-vice-vice-vice-vic	ce-v2 x3 dsp-gatewa icle/(id)/(page).html s : post	y·microservice x2 15.187ms	30.375ms	Sp	an总数: 5	*			60.750ms	
tice-zax-contxt 151.	持续时间: 75.9  持续时间: 75.9  ### ### ### ### #### #### ##########	全部折叠  75.937ms: get /article-wice-vice-vice-vice-vice-vice-vice-vice-v	ce-v2 x3 dsp-gatewa icle/(id)/(page).html s : post	y-microservice x2  15.187ms 20.706ms: post	30.375ms	Sp	an总数: S	*			60.750ms	

## DSP系统简介 - 微服务系统





## DSP技术架构 - 技术栈





# DSP技术架构 - Spring



#### Spring: the source for modern java



#### **Spring Boot**

#### **BUILD ANYTHING**

Spring Boot is designed to get you up and running as quickly as possible, with minimal upfront configuration of Spring. Spring Boot takes an opinionated view of building production-ready applications.

#### **Spring Cloud**

#### COORDINATE ANYTHING

Built directly on Spring Boot's innovative approach to enterprise Java, Spring Cloud simplifies distributed, microservice-style architecture by implementing proven patterns to bring resilience, reliability, and coordination to your microservices.

#### Spring Cloud Data Flow

#### **CONNECT ANYTHING**

Connect the Enterprise to the Internet of Anything—mobile devices, sensors, wearables, automobiles, and more.

Spring Cloud Data Flow provides a unified service for creating composable data microservices that address streaming and ETL-based data processing patterns.

#### Spring Framework 5.1.8

- context
- beans
- aop

...

#### Spring Boot 2.1.6

- actuator
- web
- admin

...

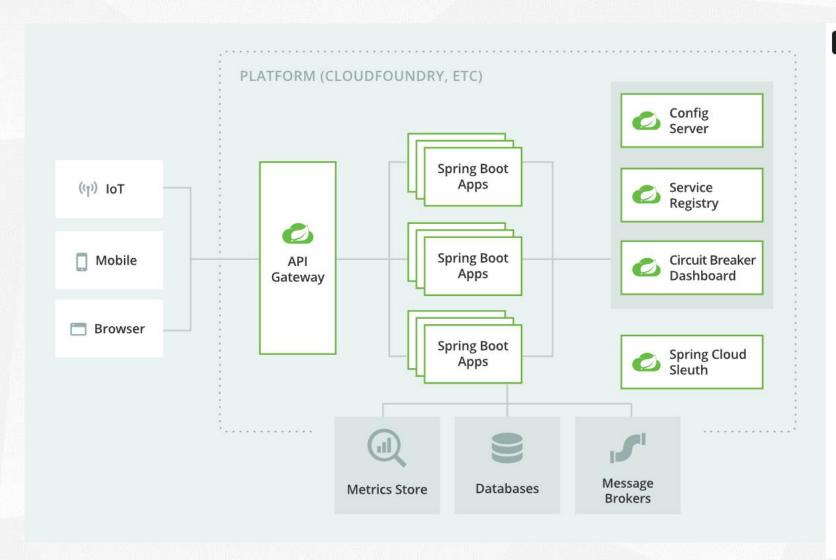
#### Spring Cloud 2.1.2

- consul
- netflix
- openfeign

...

# DSP技术架构 - Spring Cloud





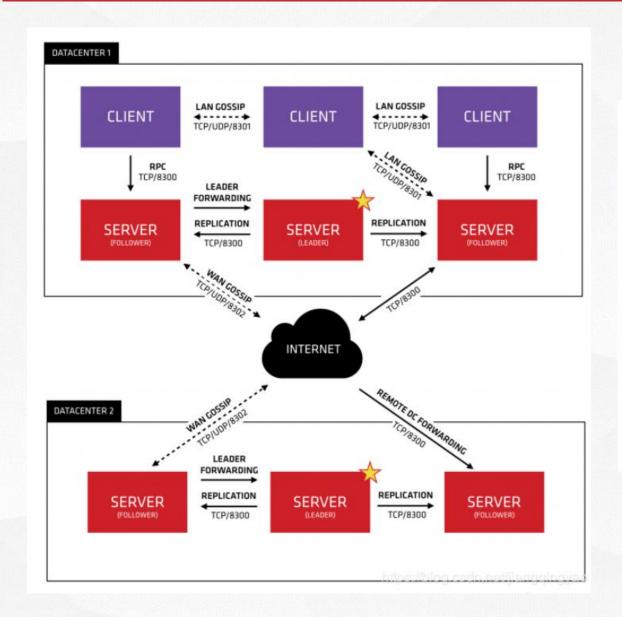
Spring Cloud					
Spring Cloud Stream	Spring Cloud Pipelines				
Spring Cloud Azure	Spring Cloud Schema				
Spring Cloud Alibaba	Registry				
Spring Cloud for Amazon	Spring Cloud Security				
Web Services	Spring Cloud Sleuth				
Spring Cloud Bus	Spring Cloud Stream				
Spring Cloud CLI	Applications				
Spring Cloud for Cloud Foundry	Spring Cloud Stream App Starters				
Spring Cloud - Cloud	Spring Cloud Task				
Foundry Service Broker					
Spring Cloud Cluster	Spring Cloud Task App Starters				
Spring Cloud Commons	Spring Cloud Vault				
Spring Cloud Config	Spring Cloud Vault				
Spring Cloud Connectors	Spring Cloud Zookeeper				
Spring Cloud Consul	Spring Cloud App Broker				
Spring Cloud Contract	Spring Cloud Circuit Breaker				
Spring Cloud Function	Spring Cloud Kubernetes				
Spring Cloud Gateway	Spring Cloud OpenFeign				
Spring Cloud GCP					
Spring Cloud Netflix					

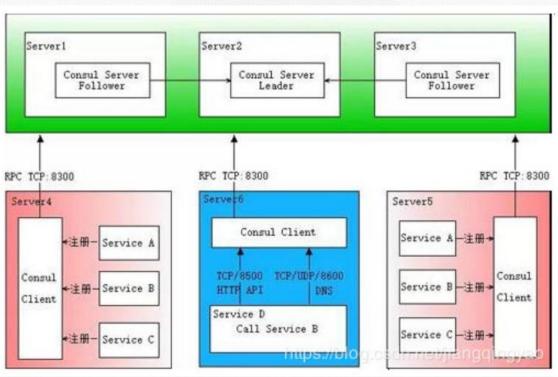
Spring Cloud Open Service

Broker

# DSP技术架构 - Spring Cloud Consul

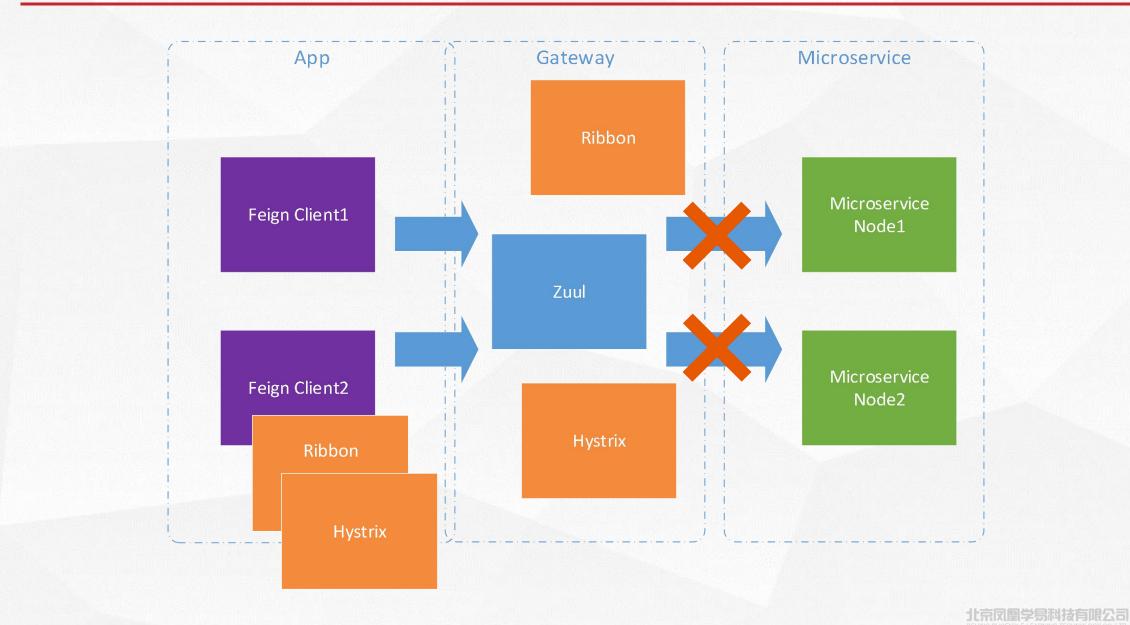






# DSP技术架构 - Spring Cloud Feign/Zuul/Ribbon/Hystrix





## DSP技术架构 - 通用组件库

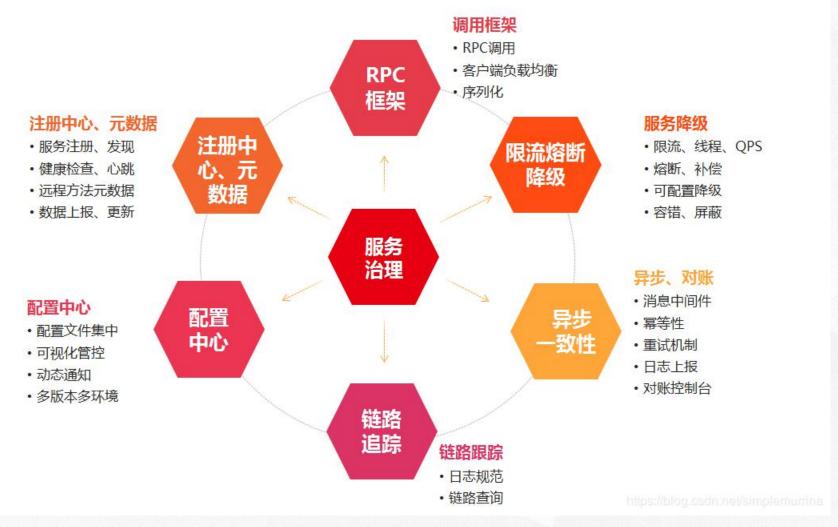


Elasticsearch 数据库组件 Redis组件 Rest组件 组件 资源监控组件 异常收集组件 分布式调度组件 API组件 阿里消息队列组 常用工具组件库 XSS安全组件 件

### DSP服务治理

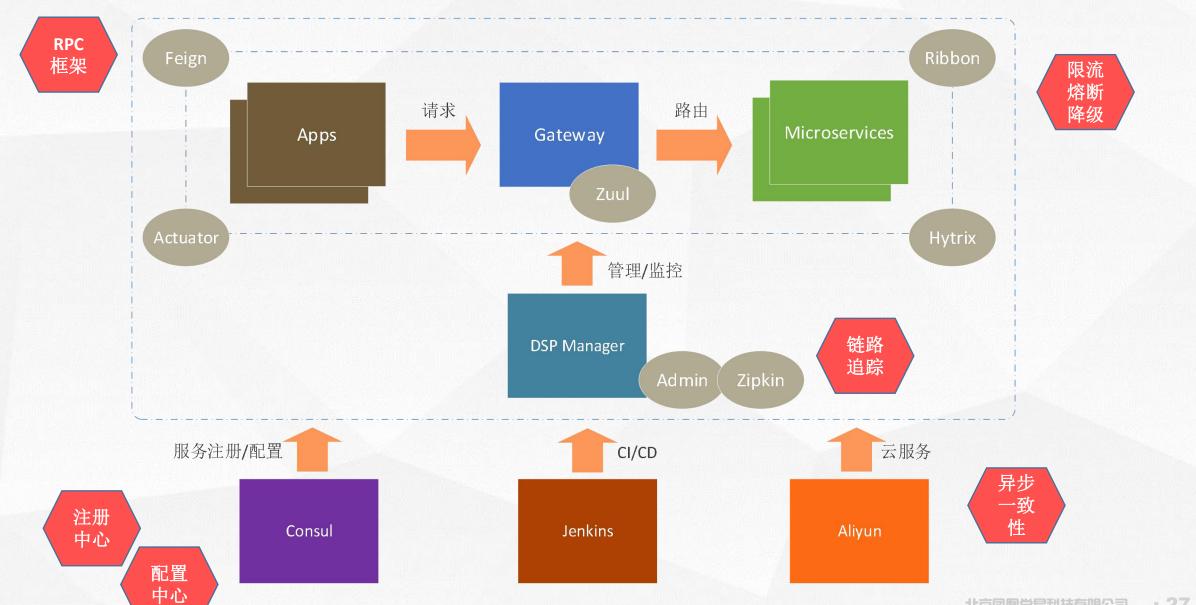


### 服务治理平台应该具备的核心功能



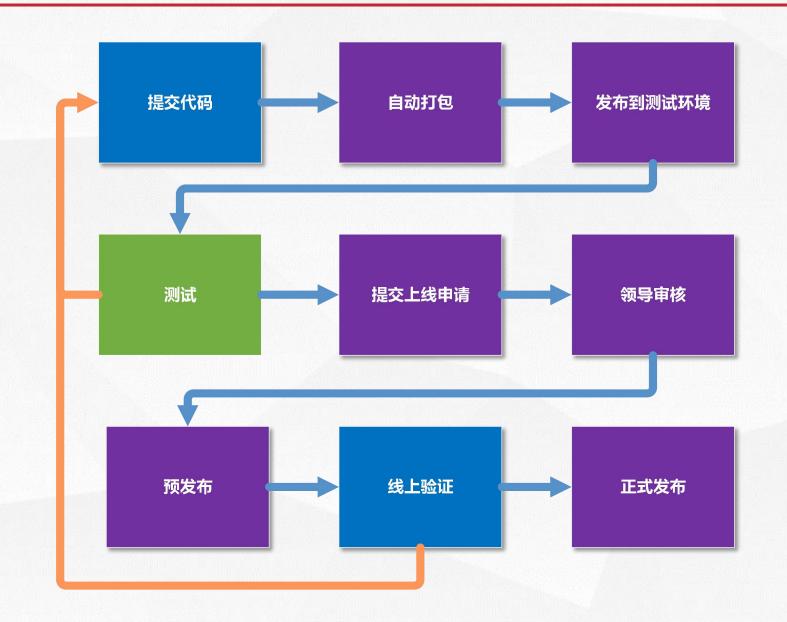
# DSP服务治理





# DSP CI / CD





# 第三部分思考与讨论

# 思考与讨论



- 1. 本次技术分享中有哪些技术或思想是可以借鉴的?
- 2. 下一步如何实践?
- 3. 其他问题及建议?

# 参考资料



微服务的"前世今生"

什么是服务治理平台?

浅谈服务治理与微服务

阿里P8架构师谈: 微服务技术架构、监控、Docker、服务治理等体系

当我们在说微服务治理的时候究竟在说什么

Martin Fowler竟然不是第一个提出微服务架构概念的?

软件开发教父,Martin Fowler

微服务(Microservices)——Martin Flower

微服务之-ServiceMesh

一篇文章了解Consul服务发现实现原理

一文读懂SpringCloud与Eureka,Feign,Ribbon,Hystrix,Zuul核心组件间的关系



# 谢谢